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CANADA'S MULTINATIONALS: THEIR CHARACTERISTICS AND DETERMINANTS

by

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ABSTRACT

This paper examines the characteristics and determinants of Canada's nearly 1,000 multinationals (MNE) for 1986. A necessary step was the careful linking of files on the MNE's Canadian and foreign operations. Many of the findings of previous work on outward investment, particularly for the US, are found. For example, there is a positive association between the probability of being an MNE and firm size as well as industry concentration. However, the paper also explores the influence of some of the characteristics of the Canadian economy - the importance of foreign ownership - that are likely to be important in determing whether or not a firm is an MNE.

Key Words: Canadian Direct Investment Abroad; Multinationals

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INTRODUCTION

Interest in Canada's multinationals (MNE) has increased with the rapid expansion of outward foreign direct investment in the recent past. Gorecki(1990) described and analyzed the pattern and nature of that investment. Attention was focused almost exclusively on the overseas operations of Canadian MNEs. Little or no attention was paid to their domestic operations, their importance in the Canadian economy, and the factors which might motivate investment abroad. The purpose of this paper is to rectify that gap.

The first section is concerned with data sources, definitions and sample selection. The discussion of Canada's MNEs begins in the next section with the quantification of the extent of their operations abroad: in short, the degree of multinationality. The determinants whether a firm becomes an MNE and the extent of its multinationality are typically a mixture of firm and industry characteristics. In the next section several of these characteristics -- including firm size, nationality, and diversity; as well as concentration and oligopolistic interaction -- are related to the probability of a firm becoming an MNE and the extent of its multinationality. The paper is completed with some suggestions for further research.

DATA SOURCES, DEFINITIONS, IDENTIFIERS AND SAMPLE SELECTION

The foreign operations of Canadian MNEs are captured through the direct investment abroad or BP-59 file, domestic operations with the T2-tax based CALURA file. These two files do not always use the same concept of the "firm" -- enterprise, reporting entity and company -- or the Standard Industrial Classification. In this section each of the files is described, together with the concepts, definitions and procedures employed in linking these files for 1986. Finally, the criteria for the selection of a set of MNEs used for analytical purposes is discussed.

Data Sources

The BP-59 file is based on data collected by the International Investment Position Section, Balance of Payments Division, Statistics Canada.(Statistics Canada, Canada's International Investment Position, Cat. # 67-202, Annual; Statistics Canada, 1981; and Gorecki, 1990, pp.11-15). This section conducts an annual survey of firms in Canada having direct investment abroad. The purpose of the survey is to collect financial information with which to prepare statements on Canada's balance of international payments and investment position. Little data is collected on the BP-59 questionnaire with respect to the firm's non-financial operations or its activities in Canada. The survey almost certainly captures the largest direct investors, but probably omits some smaller direct investors.

The CALURA file is the responsibility of Corporations and Labour Unions Returns Act Administration, Industrial Organization and Finance Division, Statistics Canada. (Statistics Canada, Corporations and Labour Unions Returns Act, Part 1-Corporations, Cat. # 61-210, Annual; Statistics Canada, Corporation Financial Statistics, Cat # 61-207, Annual). The Corporations and Labour Unions Returns Act, was passed in 1962, and subsequently amended on a number of occasions, to collect financial,[1] ownership and technology transfer information on corporations in Canada. The financial information is, to a large extent, provided from the corporation's T2-tax return and the accompanying balance sheet, income and retained earnings statements and supplementary schedules.[2] Ownership information is taken from the returns that the corporation must file pursuant to the Act.[3] The financial data refers to either the foreign and/or domestic operations of the firm, depending on the particular piece of information.

The BP-59 and CALURA files differ considerably in their size and complexity. In 1986, for example, the BP-59 file was relatively small, consisting of less than 2,000 records, compared with 600,000 to 700,000 on CALURA.[4]

Definitions and Identifiers

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[1]"[U]nless such a financial statement had been filed under the Income Tax Act, in which case Statistics Canada accesses the data from Revenue Canada." (Statistics Canada, 1988a,p.11).

[2]Under the Act, Statistics Canada was given access to all corporate tax returns filed with Revenue Canada, thus relieving the firm from the burden of sending a duplicate copy to Statistics Canada. Two tax files are sent from Revenue Canada to Statistics Canada. The first has the sales, assets, equity, profits, and taxable income of all corporations in Canada. The second contains detailed T2-tax data for all firms with assets greater than $25 million, but with sampling below this threshold. This paper uses the first file only, with what are regarded as non-active corporations removed.(i.e., sales or gross revenue of less than $10,000 or assets of less than $50,000).

[3]In 1986 returns were required from firms with revenues in excess of $15 million or assets above $10 million. However, even if the firm fell below these thresholds, if it had long-term debt or equity owing directly or indirectly to non-residents exceeding a book value of $200,000 then ownership information was sought.

[4]An individual record on BP-59 is firm with direct investment abroad; on CALURA, a corporation. Even if all these files used the enterprise to define a record, the BP-59 file would contain far fewer records than CALURA.

The use of common firm definitions and identifiers, industrial classification systems, and firm size measures are required, so that maximum use can be made of the data in the BP-59, and CALURA files.

Firm Identifiers. In order to capture the various characteristics of the MNE found on each file a common firm definition and identifier is needed. Various concepts of the firm exist. These include: the legal entity, referred to as the corporation or company; the enterprise, defined as all legal entities under common control; and the hybrid enterprise, defined as a grouping of legal entities under common control, but somewhere between the corporation and the enterprise. It may, for example, be a separate division or sub-unit of the enterprise.

In the case of CALURA the concept of the firm employed in reporting and collecting data is that of the company. In the case of the BP-59 the enterprise is usually surveyed, but one or more hybrid enterprises, with substantial direct investment abroad, may be surveyed instead. This depends, in large part, upon how the enterprise organises its books. To the extent that corporations and hybrid enterprises can be aggregated to enterprises, a common firm definition across all the two files can be employed.

Unfortunately, there was no common identifier on each file that could be used to link or match a firm. Nevertheless, it was possible to attach a single identifier to firms on each file from the same source, the Business Register. The Register, "is a central repository of the names, addresses and selected industrial characteristics of businesses in Canada." (Statistics Canada, 1998a, p.10). Each business, defined at the legal entity level, has a unique identification code -- the Business Register Identification or BRID number. Using a variety of procedures a BRID number was attached on each of the corporations in the CALURA file.

In the case of the BP-59, although the survey was conducted at the enterprise/hybrid enterprise level, the firm surveyed was nevertheless either a legal entity or grouping of legal entities. It thus typically had a BRID. These were attached manually, a feasible strategy in view of the relatively small number of firms on that file -- less than 2,000.

Individual BRIDs or legal entities, may, in turn, belong to a larger family of firms, the enterprise. The latter is defined as all legal entities or BRIDs under common control. (Statistics Canada, 1988a, p.58). An enterprise may thus be synonymous with a BRID, if it controls only one firm, or it may control a large

number of BRIDs, as do many of the larger enterprises.[5] The enterprise identifiers are taken from the CALURA file. These identifiers are based upon the information presented in Inter-Corporate Ownership, an occasional publication of Statistics Canada, that keeps track of who owns/controls whom. The identifiers themselves are not published.

The only common identifier was the enterprise. There was no equivalent of the BP-59 hybrid enterprise on CALURA. Thus, for analytical purposes, the firm was defined at the enterprise level.

Industry Classification. Each enterprise and the firms it controls need to be assigned to an industry, in order that the industry distribution of Canadian MNEs can be presented, their importance in each industry assessed.

A corporation is allocated to an industry by CALURA, on the basis of the industry which accounts for the largest share of its value added. (Statistics Canada, 1988b, pp.60-61). No breakdown is available detailing their activities on an industry by industry basis. Thus, all of the corporations' activities -- sales, assets, employment and so on -- are assigned to a single industry, even though the firm may have activities in several industries.

Enterprises, as such, were not given an industry identifier on CALURA or BP-59. This had to be derived from the industry to which the corporation(s) that the enterprise controlled were classified. The enterprise's activity in each industry was estimated by summing the activities of the corporations it controlled that were assigned to that industry. Enterprises were assigned to that industry that accounted for the largest share of assets for CALURA.[6]

Unfortunately, each file employed a different Standard Industrial Classification (SIC): CALURA, the 1960 SIC;[7] while the BP-59 file employed an even earlier version of the SIC. In linking CALURA with BP-59 -- in other words, the domestic and foreign operations of MNEs -- the CALURA industry was assigned to the BP-59

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[5]To the extent that an enterprise arranges, perhaps for financial or organizational reasons, to allocate all its direct investment through one corporation, then it may be difficult to match direct investment with the appropriate Canadian corporation.

[6]Unfortunately value added was not on the CALURA file used in this study. Of the alternatives -- sales, assets, equity, profits, and taxable income -- assets seemed the most appropriate. Furthermore, assets are used to compare the operations of the enterprise at home and abroad.

[7]For details of the 1960 Canadian SIC see Dominion Bureau of Statistics(1970).

file. Thus, for practical purposes, the 1960 SIC was used. At the fairly high level of industry classification used in much of this paper, there is a close correspondence between the 1960 SIC and that used on the BP-59 file.

Size Measures. Measures are needed of the importance of the foreign operations of Canadian MNEs, in relation to the size of their domestic and/or worldwide operations. The choice of metric is, to a large degree, circumscribed by those available on the BP-59 file, rather than on CALURA.

Only one measure of size, assets, was available.[8] Investment in affiliates abroad is defined, using the BP-59 file, as the sum of the book value of long term direct investment plus net short term inter-company debt owned by the parent firm. These values are derived from the financial statements of the affiliate abroad. Long term direct investment is defined as the sum of: common stock; preferred stock; retained earnings; paid in or capital surplus; and net long-term inter-company debt.(Gorecki,1990,pp.13-15). Net short-term inter-company debt is defined on the BP-59 file as "that portion of the liabilities of the foreign ... affiliates held by the reporting entity [the Canadian parent] intended to remain outstanding less than one year."

The total assets of the MNE, at home and abroad, are taken from the CALURA file, based upon the Canadian balance sheets of corporations. Both short-term and long term assets are included.[9] The total assets of the enterprise are defined as the sum of the corporations it controls. Krause and Lothian(1988,p.9) note, however, that since "the asset data is unconsolidated in accordance with Canadian tax provisions, enterprise aggregations are subject to double counting." Niosi, Sabourin and Wolfson(1991) find that

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[8]A second candidate was employment. However, while there are good data from the longitudinal employment analysis program, LEAP, with respect to employment in Canada, the data on employment abroad from the BP-59 file was much less reliable. The BP-59 returns were not edited for employment. In many instances employment was not included on the firm's BP-59 return. On LEAP see Statistics Canada(1988a) and Baldwin and Gorecki(1990, pp.51-60;169-176).

[9]The brief definition used by CALURA is "Includes such items as cash, marketable securities, accounts receivable, inventories, net fixed assets, investments in affiliated corporations, and other assets." (Statistics Canada,1988b,p.65). Investments in affiliates are defined as, "the total investment in common and preferred shares of subsidiaries, affiliates, and incorporated joint ventures, at cost or on an equity basis."(ibid.,p.66). This is similar to the approach used to value direct investment.

this is not a major problem.[10] For example, the share of assets held by the leading 500 private enterprises, in 1987, as a percentage of the corporate universe, was 59 per cent; when double counting was removed, the percentage fell to 55. For the top 100 enterprises the corresponding percentages were 47 and 45, respectively; for the top 50, 42 and 39.

Size measures are not only important in examining the relative importance of domestic and foreign operations of Canada's MNEs, but also for comparing the domestic operations of MNEs with Canadian firms that have decided, for whatever reason, not to invest abroad. Only one size dimension was used, sales. In contrast, to the asset figures, which include the firm's overseas operations, sales from CALURA are confined to those generated from the Canadian operations of the firm only.[11]

Sample Selection

Three sets of sample selection criteria were employed. The first two are at the enterprise/hybrid enterprise level used on the BP-59 file, while the third is applied at the enterprise level. The net result of the application of these three criteria is a small sample of firms that account for the vast majority of Canadian direct investment abroad.

Defining an MNE.The definition of a multinational used in this study is a firm with investment in Canada and at least one other country. Three criteria were applied to the BP-59 file to ensure conformity with this definition. The first criteria excluded enterprises/hybrid enterprises, that had no investment in Canada,[12] while the second two were designed to exclude affiliates that had no direct investment abroad.[13] The number of reporting entities removed from the BP-59 universe of 1,726 entities for these reasons, was 343, with the latter two reasons accounting for the

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[10]Using the extensive balance sheet information that is available for larger corporations from their T2-tax return.

[11]The actual definition of sales is,"Gross revenue from Canadian operations."(Statistics Canada,1988b,p.65).

[12]This occurred when the reporting entity was not classified to an industry in Canada; an indication that it had no economic activity in Canada.

[13]This was inferred when the affiliate was a shell or primarily motivated by financial reasons, such as to borrow abroad. An affiliate can be omitted, which may or may not result in the parent firm that controls it being excluded. This depends on how many affiliates the parent corporation controls, and how many of these were omitted.

virtually all of the omissions.(Gorecki,1990, p.17 and Table A-1,n.p.). Thus at the end of the first set of criteria the number of enterprises/hybrid enterprises was 1,383.

Matching Records.Although the enterprise/hybrid enterprise might be listed on the BP-59 file it may, nevertheless, not be found on the CALURA file. There are a number of reasons for such unmatched records. Different survey frames, for example, may result in a firm appearing on the BP-59, but not in CALURA. Alternatively the files may not be updated with the same regularity or edited with the same degree of thoroughness.

For the 1,383 enterprises/hybrid enterprises with direct investment on the BP-59, 141 were unmatched on CALURA. The book value of all long term Canadian direct investment abroad accounted for by these unmatched records was only 0.8 per cent, with no single record accounting for more than 0.1 of this investment. Thus omission of these records reduces coverage by a very small amount.

Data Quality. The direct investment of a firm should not exceed the value of its total assets. The former is necessarily a subset of the latter. Nevertheless, due to different accounting conventions in Canada and abroad as well as variations in the updating of the direct investment file, it is possible that the direct investment of a firm taken from the BP-59 may exceed its total assets, recorded on CALURA.[14] In such cases it seems appropriate to exclude the observation from the sample.

In order to resolve this issue, RATSET, the ratio of direct investment abroad to total assets was estimated for all firms with direct investment. This was done at the enterprise rather than the enterprise/hybrid enterprise level.[15] Those firms with a RATSET equal to or greater than one were of little importance. Although they accounted for about 7 per cent of those firms with direct

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[14]On the subject of updating, in number of instances, the BP-59 proxies the direct investment of an enterprise/hybrid enterprise for 1986 with that for the most recent year surveyed. In 1982 all firms with direct investment were surveyed. Subsequently firms with small amounts of direct investment were not surveyed every year. Thus the most recent year surveyed would fall between 1982 and 1985.

[15]The direct investment enterprise/hybrid enterprise is matched to the most appropriate corporate identifier on CALURA. However, in some instances the direct investment recorded by the enterprise/hybrid enterprise may refer to that undertaken by several corporations in the same enterprise, all of which are recorded separately on CALURA. Thus the relevant definition of the firm for these purposes is the enterprise.

investment abroad, they accounted for around 1 per cent of direct investment abroad and less that half of 1 per cent of the total assets of all firms, irrespective of whether they had direct investment abroad or not.

A corollary of these percentages is that the average size of firms with RATSET greater than unity were smaller than those with RATSET less than unity. This indeed turns out to be the case. In terms of assets, the ratio of the average size of the firms with RATSET >1 to firms with RATSET<1 is 181; in terms of direct investment, the ratio is 9.8. Thus it would appear for smaller firms that valuation and/or updating problems lead to RATSET values greater than unity.

For the seventy-five firms whose RATSET was greater than or equal to unity, the mean value, 4.8, was not such as to suggest that minor valuation differences between denominator and numerator were responsible for a RATSET of greater than unity. Nevertheless, there were a small number of observations with ratios substantial above unity, as indicated by the fact that the median value of RATSET for these seventy-five firms was 1.4. If the six firms with RATSET greater than 10 are removed, the mean value of this ratio for the remaining sixty-nine firms falls to 2.

In addition to the use of RATSET to check the quality of the data a number of other checks were conducted. These were not carried out in any systematic manner. Rather, in the course of preparing this paper observations or values of particular variables that seemed, at first sight, "low" or "high" were examined as to their veracity. In virtually every case the underlying data, often verified against other sources, proved accurate. In two cases, however, the CALURA reported value of assets was considerably lower than those available from other sources. Appropriate revisions were thus made to the CALURA reported values.

The net result is a sample of 988 enterprises with direct investment abroad. These enterprises accounted for virtually all Canadian direct investment abroad and close to 60 per cent of the assets of Canadian corporations. Thus, not surprisingly, MNEs tend to be larger firms, given that there are in excess of 500,000 enterprises in the Canadian universe.

This section has briefly described the data files that are to be used to analyze Canadian MNEs, with some discussion of the variables that will be used and sample selection procedures. A number of industry level variables will be used to characterise or explain the distribution and intensity of Canadian foreign direct investment abroad. These variables will be discussed, however, in greater detail below.

AT HOME ABROAD: THE DEGREE OF MULTINATIONALITY

A multinational is defined, for the purposes of this study, as a firm with investment in Canada and one other country. Multinationality is the extent to which the firm allocates its investments or activities abroad. The more extensive or important these foreign operations the more multinational the firm can be considered. Indeed, it has been argued that at some point the firm becomes a truly global corporation, with the country in which the firm originated having little influence either on the firm's corporate culture or range of activities.(Reich,1991)

In contrast to the approach adopted here, several studies of firms with direct investment abroad have required that such firms have a certain level of foreign activity in order to be considered a multinational. Two criteria have commonly been used: investment in a minimum number of countries; or a minimum ratio of foreign to total operations. However, there is no consensus on what these minimum levels should be -- as Table 1 illustrates -- or what rationale lies behind them, except insofaras foreign activity should be, in some sense, important.[16]

Irrespective of the merits of the various definitions, this discussion, nevertheless, suggests two criteria or dimensions that can be used to characterise the degree of firm multinationality. However, both of these suffer from shortcomings in characterising the degree of multinationality. New measures are thus needed to capture the firm's investment abroad.

In this section these existing together with one additional measure of multinationality are presented for the 988 firms with direct investment abroad in 1986. In addition, the implication of using the various criteria in Table 1 to define an MNE are explored.

The Number of Countries -- NC.

The first measure of multinationality is defined as follows:

> NC = the number of countries, excluding Canada, in which the firm has at least one affiliate.

Each affiliate of a Canadian firm is classified to single country, despite the fact that it may, in turn, have joint ventures or

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[16]Buckley and Casson(1976,pp.29-30) go one step further and use these two criteria, together, to divide MNEs into three categories. However, there is no compelling reasoning underlying the particular cut-offs selected or the threefold classification of MNEs -- international, transnational and uninational enterprises -- chosen.

affiliates itself in third countries. Thus, NC, which will vary between 1 and 110,[17] will tend to understate the geographical spread of MNE activities.

In Table 2 Canadian firms with direct investment abroad are classified by NC. For some of the higher values of NC, where there are only a few observations, these are grouped together so as to avoid confidentiality problems. The table presents, for enterprises with a given value of NC, their importance using a number of dimensions, including assets and direct investment. The discussion of the final column in Table 2 is deferred until later.

The vast majority of Canadian MNEs allocate their direct investment in a small number of countries. For example, 897 or 91 per cent of the 988 Canadian MNEs allocate all their direct investment in three or less countries. However, these firms, in terms of either Canadian direct investment or the assets of Canadian MNEs, were, by comparison, relatively unimportant. The 897 firms referred to above account for only 24.3 per cent of direct investment and 34.4 per cent of assets of Canadian MNEs in 1986.

In contrast, the small number of firms with operations in a large number of countries were of substantial importance in terms of direct investment abroad and the assets of Canadian MNEs. The 42 MNEs with direct investment in seven or more countries accounted for 67.7 per cent of all direct investment and 58.9 per cent of MNE assets, but only 4.3 per cent of Canada's MNEs.

Table 2 can also be used to evaluate the implications of various values of NC for determining whether a firm should be classified as a multinational. The Noisi(1985) four country threshold would result in only 91 of the 988 firms with direct investment being considered as an MNE. If the threshold is raised to Vernon's(1971) somewhat higher level of six, then the number of MNEs would decline to 53. In both cases, however, the samples selected accounted for well over half of all Canadian direct investment. Nevertheless, between a quarter and a third of direct investment would be excluded if the Noisi/Vernon criteria were applied.

The Ratio of Direct Investment to Assets -- RATSET.

The second measure of multinationality is defined as follows:

RATSET = the ratio of direct investment to assets.

An earlier section of the paper discussed the definitional and valuation problems relating to the numerator and denominator. The

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[17]For the purposes at hand the world is divided into 104 countries and six residual regions.

ratio will vary between zero and unity. All of the firm's direct investment will be captured, even if its affiliates enter into joint ventures or other arrangements.

In Table 3 the 988 firms with direct investment are classified according to their value of this ratio. Also presented is the distribution of direct investment and assets of Canadian firms in each of the twelve RATSET categories chosen for this paper. The final column is discussed in the next section.

The distribution of firm multinationality using RATSET has some marked similarities and differences to that using NC. In both cases a large number of firms have a very limited degree of multinationality. Of the 988 firms with direct investment 675 or 68.3 have 20 per cent or less of their assets located abroad. However, while firms with low values NC are of little importance in terms direct investment and the assets, this is not the case for firms with low values of RATSET -- those enterprises with RATSET < 0.20 -- accounted for 58.8 per cent of direct investment and 95.1 per cent of the assets of Canadian MNEs.

A corollary is that firms with high values of RATSET are not only few in number but relatively unimportant in terms of assets or direct investment. For example, those MNEs with 60 per cent or more of their assets abroad account for 12.2 per cent of direct investment and less than 1 per cent of the assets of Canadian MNEs. It may be that these are small firms investing abroad for the first time or gradually transferring their assets abroad in response to various competitive pressures.

RATSET has been used as a criteria by Rugman and McIlveen(1985) and Grubaugh(1987) for classifying a firm as a multinational. Rugman and McIlveen define an MNE in those instances where RATSET > 0.25; Grubaugh > 0.10. Application of these criteria would result in 266 and 501, respectively, of the 988 firms with direct investment, being considered multinational. However, while this coverage is greater than using NC > 4 or 6, asset and direct investment coverage is lower using RATSET. For example, the 0.25 threshold covers only 38.2 per cent of direct investment, 4.1 per cent of assets; while 0.10 yields somewhat higher coverage at 60.9 and 13 per cent, respectively

Toward a Better Measure of Multinationality -- MLTNTL.

The measures of multinationality presented in Tables 1 to 3 suffer from a number of shortcomings. Counting the number of countries in which an enterprise has direct investment takes no account of the relative importance of the firm's investment in each country. Hence, although a firm may have direct investments in a large number of countries, these may be of trivial importance or substantial importance. Furthermore, it says nothing about the relative importance of foreign compared to domestic activity.

Paying attention to only the ratio of foreign to total assets is no solution, however, since the no account is taken of the country distribution of direct investment. A firm may have all of its direct investment in one or a large number of countries, for a given value of RATSET.

To some degree this problem may be of little consequence, if NC and RATSET are strongly related. However, this did not appear to be the case. The correlation was only 0.0079 and not significantly different from zero at the usual levels. This is not an altogether surprising finding in view of the pattern revealed by a comparison of the left and right columns of Tables 2 and 3. For example, Table 3 shows that those firms with RATSET between 0.00 - 0.049 or 0.10 - 0.149 or 0.80 - 0.89 all had, on average, values of NC of 1.9.

One index which captures both the number of countries in which investment takes place as well as their relative importance is the Herfindahl index, more usually used to summarize the firm size distribution. This index is defined as follows:

$$MLTNTL = \sum_{i=1}^{N} SUM\ Ci,$$

where C = the proportion of the firm's assets in country i,
and N = the number of countries in the world including Canada, 111 or NC + 1.

This index will vary between unity, for a firm that invests solely in Canada, to 1/N, for a firm that allocates its investments equally across N countries of the world. It is thus an inverse index -- the greater the value of the index the less the degree of multinationality.

The MLTNTL index also has the property that it can be expressed in a numbers equivalent form,

$$NE = 1/MLTNTL.$$

The NE is the number of countries over which the firm needs to spread its investment equally in order that its MLTNTL would be the same as that observed. For example, if MLTNTL is 0.5, that is equivalent or consistent with the firm splitting its assets equally between two countries. In this case the index varies directly with the degree of multinationality.

The distribution of firm multinationality using MLTNTL is presented in Table 4. For all firms classified to a given category the distribution of number of firms, direct investment and assets is tabulated. In addition, for all firms classified to a given MLTNTL class, the last two columns contain the mean values of RATSET and NC.

As with the distribution of RATSET and NC, a large number of firms have a very low degree of multinationality using the MLTNTL index. Of the 988 firms with direct investment in 1986 the vast majority had values of MLTNTL of 0.50 or more. The corresponding values of NE being 2 or less. In fact, 945 or 95.4 per cent, accounting for 71.9 per cent of direct investment and 97.2 per cent of the assets of firms with direct investment fell into this range.

Nevertheless, there are a small number of firms with MLTNTL that are less than 0.5 with extensive operations abroad measured by NC and RATSET. However, despite the fact that they number only a handful they account for 28.1 per cent of direct investment, but only 2.8 per cent of the assets of Canadian MNEs.

Summary

Three measures of firm multinationality were applied to 988 firms with direct investment. The results suggested that most firms had only a limited degree of multinationality. For example, 91 per cent of these firms had direct investment in 4 or fewer countries; 68 per cent allocated 20 per cent or less of their assets to direct investment. Nevertheless, there were a small number of firms with a considerable degree of multinationality. These were frequently of substantial importance in terms of accounting for direct investment and/or the assets of the 988 firms.

Although there was a considerable degree of similarity in the pattern of firm multinationality revealed by the three indices, this does not necessarily mean that each is capturing the same aspect of direct investment. Correlations were, for example, typically much less than unity among the three indices, although sometimes significant.[18] Since it could be thus argued that each was capturing a different aspect of firm multinationality, it was decided to keep all three in the analysis conducted in the remainder of this paper.

FIRM AND INDUSTRY DETERMINANTS OF MNEs

A number of factors have been identified in the literature as

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[18]The correlation matrix was as follows:

	RATSET	NC
MLTNTL	-.7772	-.0725
	(0.0001)	(0.0226)
RATSET		.0079
		(0.8033)

where the significance levels for the null hypothesis are in parenthesis.

being important determinants of whether or not a firm undertakes direct investment and, to a lesser degree, the extent of its multinationality. These same factors -- firm size, nationality, industry concentration -- are also frequently of interest from a public policy point of view. In this section these two facets are discussed, before data is presented concerning the relationship these factors and the probability of an enterprise being an MNE as well as the degree of multinationality.

Enterprise Size.

Large enterprises that have direct investment abroad are frequently seen as a source of public policy concern, by both host and home countries, because they are perceived to have considerable bargaining power or leverage, vis a vis any national government. This bargaining power comes about not only because of their size, but also because of their ability to shift and/or site new facilities in a number of different jurisdictions.

Vernon(1971,p.16), for example, remarks that throughout, "most discussions of the problems of multinationality, the question of size has constantly been to the fore...Size, it is presumed, means power. And power lies somewhere near the heart of the problem." This emphasis on size can also been seen in the title of Rugman and McIlveen's book on Canadian MNEs, "Megafirms" and the criteria, detailed in Table 1, used by several authors to select samples of MNEs for study.

Enterprise size has also featured as a determinant of why firms go multinational.(Blomstrom and Lipsey,1991; Horst,1972; Grubaugh,1987). Investing abroad may require the incurring of certain fixed costs. Large firms may be considered better credit risks and thus have an easier time financing direct investment. The smaller firm may prefer to export and/or license until the required size is reached. These fixed costs are likely to be higher the greater the dissimilarity of the host compared to the home country. In other words, the fixed costs of investing in the U.S. are likely to be much lower than in Turkey.

Large firm size, on an industry basis, is indicative of firm success and a large demand for inputs. Success in one market, it could be argued, increases the probability of success in the same product market in a different country, "since both derive from the same set of technological and marketing capabilities." (Horst,1972,p.260). Equally, the larger firm the greater are its input requirements. If there are fixed costs to setting up an affiliate abroad to source an input, then larger firms are more likely than smaller firms to have direct investment for this purpose.

The relationship between enterprise size and the incidence and extent of multinationality is examined in several ways. First, all

firms in the CALURA universe, irrespective of whether or not they have direct investment, are ranked, from largest to smallest, in terms of their assets. These enterprises are then divided into various groups, depending on their rank. For each group Table 5 presents, details of the proportion that are MNEs, and for those that are MNEs, mean values of three indices of multinationality -- RATSET, NC, and MLTNTL.

The table shows that the probability of being a multinational varies directly with firm rank. Firms among the leading 25 in the Canadian economy, ranked by assets, had an 0.80 probability of having direct investment abroad; for firms ranked 201 to 300 about half that probability, at 0.37. By the time firms ranked 751 to 1,000 are reached the probability has fallen to 0.20. This result is consistent with earlier U.S. research.

Despite the fact that the probability of being an MNE increases with firm size, the degree of multinationality does not always vary directly with firm size. Indeed, for those firms with direct investment, only NC and firm size vary in this manner. For the other two measures of nationality the variation with respect to firm size is inverse -- remember the larger MTLNTL the less the degree of multinationality.

These results mean that MNEs with large assets, while allocating a small proportion of their assets to direct investment, nevertheless did so across a large number of countries. For example, the 20 largest MNEs in the Canadian economy allocated 5.7 per cent of their assets to direct investment across 13.3 countries. In contrast, much smaller MNEs allocated, on average, a much larger percentage of their assets abroad, but across a smaller number of countries. For those MNEs ranked 25,000 or lower in the CALURA corporate universe, direct investment accounted for between 28.5 per cent and 38.9 per cent of their assets, typically concentrated in a single country.

Even though the larger MNEs devote a relatively small amount of their assets to direct investment, because of their large size they account for the vast majority of direct investment. For example, the leading 20 MNEs ranked by assets account for 49.8 of Canadian direct investment; the leading 38, 62.7 per cent; 55, 68.5 per cent; and 69, 72.2 per cent. The low ranked MNEs, in terms of assets, would thus appear to be small firms making a second investment in another country, rather than growing to maturity in Canada.

Enterprise Nationality.

In designing appropriate policies governments must take positions on a number of issues including firm taxation, promotion of various forms of industrial activity and international agreements to regulate direct investment. The position adopted is

likely to affect firm profitability and success, and thus will impact on worker and shareholder welfare. While the former are typically citizens of Canada, the same does not always apply to the latter. However, governments are typically interested in promoting the welfare of their own citizens, not foreigners. Thus, firm nationality is likely to be a consideration influencing public policy.

In the present context nationality refers to those individuals or parent corporations that control the Canadian MNE. In 1986, 87 per cent of the book value of Canadian long term direct investment was accounted for by Canadian controlled enterprises, the balance by foreign-controlled enterprises.(Gorecki, 1990, Table 9, n.p.)

There are a number of reasons why the nationality of a firm may help to explain its direct investment activities. First, explanations of a firm's direct investment abroad typically run in terms of firm, location and country specific advantages. Thus, the country in which ultimate control of the parent firm is located is likely to exercise a decisive influence over the direct investment activity of its affiliates. To the extent that these firm, location and country specific advantages differ across parent firms in different countries, then so will the direct investment activities of firms, by country of origin. On this issue Vernon(1971,p.16), remarked that nationality may, "breed distinctive types of multinational enterprise, with different goals and patterns of operation."

However, even if there is little to the argument that firm, location and country specific advantages explained MNE activity, there are still other reasons for expecting nationality to matter. There is a large literature in Canada on the effects of the substantial foreign ownership of Canadian industry.(See, for example, Canada,1972). Much of it suggests that foreign ownership results in foreign owned firms, other things equal, having less opportunity to invest abroad -- or for that matter within Canada -- than a Canadian controlled firm of a similar size. This reflects the fact that the foreign parent, typically located in the U.S., is optimizing across a worldwide opportunity set of investments. Frequently the Canadian affiliate is set up to service the Canadian market, with little thought given to direct investment, which is the responsibility of the foreign parent.

The discussion above suggests that foreign owned firm in Canada are less likely to invest abroad than Canadian owned firms. In view of the earlier result that showed a positive relationship between direct investment and size, the incidence and degree of multinationality was compared for similar sized foreign and Canadian controlled enterprises.

In Table 6 enterprises are grouped on the basis of the asset ranking in the same way as in Table 5. For each grouping the table

presents the proportion that are foreign controlled. In the case of the leading 25 enterprises, for example, this is 12 per cent. The next column is the ratio of the proportion of foreign-controlled enterprises that are MNEs to the corresponding proportion for Canadian-controlled enterprises. For the leading 25 enterprises the probability of being an MNE is 1.23 times higher for a Canadian than a foreign-controlled firm. The ratio of the mean value of each of the three multinationality indices for Canadian-controlled MNEs to the mean value for foreign-controlled MNEs is presented, by size class, in the next three columns. These show, for example, that among the leading 25 enterprises, Canadian-controlled MNEs have a mean value of NC that is 3.58 times that of foreign-controlled MNEs among the leading 25 firms.

Foreign-controlled firms are of particular importance among the firms ranked 151 to 750 where they account for approximately half of all firms. However, at the two tails, especially among the lower ranked firms -- below those ranked 5,000 -- and the very high ranked firms -- 1 to 25 -- the importance of foreign-controlled firms falls away. Nevertheless, in all size groups above where the rank of the enterprise exceeded 10,000 the probability of a firm being foreign-controlled was greater than 10 per cent.

The results are consistent with the view that the probability of being an MNE is greater for a Canadian than a foreign controlled firm for enterprises ranked above 5,000. However, the reverse occurs for firms ranked below 5,000. This is consistent with smaller Canadian-controlled firms not having reached the minimum size required to invest abroad. Their similar sized foreign-controlled counterparts, on the other hand, may not be a such a disadvantage because they are part of a larger global firm that uses its Canadian affiliate to invest in third countries.

Enterprise Diversity.

The degree to which an enterprise diversifies its activities within its Canada is of interest primarily as an explanatory factor for a firm being a multinational. This is not to deny that there are public policy implications associated with firm diversity. However, they are usually go hand-in-hand with concerns over corporate concentration and conglomerates. These issues were dealt with in the mid-1970s by the Royal Commission on Corporate Concentration(1978), which devoted virtually no attention toward studying outward direct investment. However, to-day that situation may not be repeated because Canadian firms have a much greater stock of direct investment.

It has been suggested that firm diversity and outward direct

investment are inversely related, in the short run at least.[19] The same asset, be it a trademark, an innovation or a management skill, can be deployed in related uses or industries and/or the same industry but in a different country. However, at any point in time the firm may be unable to invest in all of these uses. This may occur because of the limits on the rate of firm growth and/or because the asset itself is characterised by limits to its rate of exploitation. It may, for example, be a research or management team. Thus an inverse relationship is predicted between diversification and direct investment.

On the other hand, over the longer run, diversity and direct investment may be positively related. Over time what in the short run are mutually exclusive investment opportunities, can be undertaken. Thus, particularly for larger enterprises, which have had the chance to plan over a longer time frame, a positive relationship will likely be found between diversification and direct investment.

There are other reasons, however, why diversification and direct investment might be related. Large conglomerates often grow by the acquisition of leading firms in an industry. To the extent that these firms are large, they are more likely to have direct investment than smaller firms. Thus, diversity and direct investment maybe related in this way as a by-product of a firm's domestic market acquisition strategy.

Measures of diversity frequently rely on two sets of data: the industry distribution of the firm's sales (or some other size indicator); and, the degree to which the industries in which the firm invests are "related." (Gorecki,1974;Rumelt,1974; Gollop and Monahan,1991). Some measures merely count the number of industries in which the firm has activity, while others involve complex weighting schemes, with the firm's diversification strategy divided into up to nine different categories. The choice among the measures depends not only on the theoretically most appropriate measure, but also the quality of the underlying data. In this study it was the latter factor that was decisive, since theory provided little guidance.

The data source used here to measure the firm diversification across industries within Canada, CALURA, suffers from a number of important shortcomings for the purposes at hand. For example, although an enterprise may have activities in many industries, it is only where the enterprise created a separate legal entity in each industry that the full range of its industrial activities will be captured. It is most unlikely that this is the norm. As a result some or all of the activities of a multi-industry firm will be

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[19]For further discussion see Wolf(1977), Horst(1974) and Caves(1982).

classified to the firm's most important 3-digit industry.

These and other problems led Niosi, Sabourin, and Wolfson(1991), in using CALURA, to rely on a relatively simple threefold classification to characterise the degree of firm diversification. The various categories are defined in Table 7. Full details of the 3-digit SIC groupings of equivalent, related and vertically integrated may be found in Niosi, Sabourin and Wolfson(1991, Appendix 1). Finally, it should be noted that in using this classification, the authors felt that the CALURA data will likely overstate the number of single product firms while understating the number of conglomerates.

The importance of the three diversification strategies among Canadian enterprises is presented in Table 8. The vast majority of enterprises are single product. These are, on average, much smaller than those firms that were classified either as related product or conglomerate. Thus the more diversified the firm the larger the average size. The average size of conglomerates is substantially below that of related product firms.

The relationship between a firm's diversification strategy and the probability that it will be an MNE as well as the degree of firm multinationality is detailed in Table 9. For each diversification strategy firms are divided into small and large, based on whether or not their assets were below or above $25 million, a break point used in CALURA publications. This is an attempt to take into account: that larger firms have a greater probability of being a multinational; and the fact that average firm size differs substantially by diversification strategy.

Table 9 shows that, for a given diversification strategy, that the probability of being an MNE increases with firm size. Furthermore, for those firms that are MNEs, NC and MLTNTL varies directly with firm size, while RATSET varies inversely. These results are consistent with those reported based on Table 5, which refers to all enterprises, irrespective of their diversification strategy.

The data in Table 9 show that, holding firm size constant, that a firm selecting a related or conglomerate diversification strategy, has a higher probability of being a multinational than a single product firm. For example, large conglomerates have an 0.31 probability of being an MNE, large single product firms, 0.12. Thus it would appear that diversifying and the probability of being a multinational are positively related.

Small related product firms have a much greater probability of being an MNE than similar sized conglomerate firms -- 0.02 vs 0.002. However, the reverse pattern of probabilities occurs for large firms, following these two diversification strategies. In the case of large conglomerates this may reflect that they own the

leading firm's in an industry and such firms often have operations abroad.

In sum, diversification and the probability of being an MNE are positively related. These two methods of firm growth do not appear to be mutually exclusive. This suggests that the factors that explain a firm's diversification strategy also help explain its being a multinational.

Industry Concentration

MNEs are frequently seen not only as large but also located in industries or sectors dominated by a few firms. We have already shown that large absolute size and being an MNE are positively related. In this section that discussion is extended by considering why MNEs might be located in oligopolistic industries.

There are good reasons for hypothesizing that the degree of concentration and the presence of MNEs are positively associated. However, this does not necessarily reflect cause and effect. Rather, it is, in part at least, the result of certain common factors being responsible for both concentration and MNEs. However, the relationship is not one to one because some of factors responsible for concentration are less likely to be factors associated with a firm deciding to become an MNE.

Concentration is frequently said to be determined by barriers to entry, which are commonly divided into several categories: advertising expenditures; R&D; capital cost requirements; and economies of scale.(Caves,1982,pp.94-97). In other words, the greater the capital expenditure required to build a plant of minimum efficient size or the R&D needed to discover and market a new innovation or product, the more likely it is that the industry will be dominated by a few firms.

At the same time, however, some of these barriers to entry are likely to provide fertile ground for the development of intangible assets that are claimed to be the basis for MNEs. (Caves,1982,pp.1-30; Graham and Krugman,1989,pp.27-44;145-147). The argument is much stronger for advertising and R&D expenditures than scale economies and capital costs.

The relationship between concentration and the presence of MNEs is examined by tabulating the probability of a firm being an MNE by concentration category, using an industry classification that divides the economy into 34 industries. The probability of being an MNE is estimated for all firms as well as small and large firms classified to an industry. Concentration is measured as the percentage of industry size accounted for by the leading four firms. The concentration categories are as follows:

0 - 25: atomism;

25 - 50 slightly concentrated or low grade oligopoly;
50 - 75 moderately concentrated oligopoly; and
75 - 100 highly concentrated oligopoly.

This classification is based upon Canada, Department of Consumer and Corporate Affairs(1971,p.21), which in draws upon Bain. The results are presented in Table 10.

A number of caveats should be borne in mind. The industry classification is quite broad, being, roughly speaking, at the 2-digit level. (For details see note 2, Table 10). Thus several industries are, in some instances, rolled into one, a result that is likely to bias measured concentration downwards. This may account for the small number of industries classified in the highest concentration class.

The size distribution of firms in an industry consists of all companies under common control. In other words, if a firm has companies in three industries then these are aggregated separately for each industry. This is the concept of the unconsolidated enterprise discussed above. Even with this procedure problems may still arise in view of the fact that a company may span several industries. Hence its importance in industry A -- to which all of its activities are allocated -- is overstated, while its contribution to all of the other industries in which it has activities is understated. Thus the numbers in Table 10 should be regarded as somewhat rough and ready.

The probability of being an MNE increases markedly as the level of industry concentration rises across all concentration categories. For example, in the lowest category the probability of being an MNE is only 0.010; in the highest, 0.134. As such this result appears to be broadly consistent with the earlier, mostly U.S. work, in the same area (Caves,1982,pp.96-7).

The positive association between concentration and the probability of being an MNE may, to some extent, be specious. The average number of firms per industry decreases markedly as the mean level of concentration increases -- in the lowest concentration category the number is 32,005, the highest, 327. This raises the possibility that in the lowest concentration category there is a large number of small firms; as concentration rises these decline in importance. Smaller firms are less likely to have reached the size required to invest abroad. To the extent that they developed an asset that can be used as the basis for direct investment they are more likely to rent or sell it that go abroad. Thus when account is taken of size of firm the relationship between concentration and the probability of being an MNE may disappear.

In order to investigate this possibility all firms were divided into small or large depending on whether there total assets were below or above $25 million -- the cutoff used by CALURA. The

probability of being an MNE for these two groups of firms, by concentration category, is presented in Table 10. The results suggest that even after taking into firm size there is a positive association between concentration and the probability of being an MNE particularly for larger firms.

Oligopolistic Interaction

A strand in the literature on the MNE and concentration has taken the analysis a step further by suggesting that concentration has an independent effect on the probability of a firm being an MNE. However, attention is paid only to the leading firms in an industry where such interaction is likely to be especially important.

Knickerbocker(1973) argued that when a leading firm first decides to invest abroad then other leading firms are likely to match that investment for fear that a rival may steal the competitive march. As a result rival firms will match the investment of the first firm. However, where there is little oligopolistic interaction -- atomism -- or where the leading firms are able to act so as to maximize joint profits -- highly concentrated oligopoly -- then there is much less necessity to match the leading firm's initial move. Thus the probability of being an MNE among the leading firms in an industry should increase with concentration and at the highest level perhaps decrease.

This prediction was tested by Knickerbocker(1973) by examining the timing of direct investment among the leading firms. However, with the data at hand, this procedure cannot readily be employed for Canada. As a result, we have a somewhat weaker test that examines the probability of being an MNE by concentration category for leading firms at a point in time -- 1986. However, to extent that much Canadian direct investment took place over the ten years to 1986 this limitation may not be that important.

Table 11 is organised in a similar manner to Table 10, except that the probability of being a MNE is presented for the leading four and ten firms in an industry. The results are, broadly speaking, consistent with the predictions of Knickerbocker(1973). For the leading four or ten firms the probability of being an MNE is highest where there is oligopolistic interdependence, but it is likely to be difficult for the firms to co-ordinate their investment plans. For the low and high concentration categories the probabilities are much lower.

R&D and Advertising.

The theory and much of the evidence -- mostly U.S. -- concerning the MNE suggests that product differentiation and R&D expenditures are likely to be associated with the firm being an MNE. In order to determine whether a similar result holds for

Canada 2-digit manufacturing industries were divided into high/low R&D intensive and high/low advertising intensive. The use of industry level data reflects the lack of availability of firm level data on these variables, while the choice of the 2-digit industry reflects the difficultly of assigning all of an enterprises' activities to a narrower industry definition. The advertising and R&D used to bisect the 20 2-digit industries into two equal sized groups of ten, refers to the late 1970s, not 1986. However, structural variables usually change slowly over time. The mean probability of being an MNE as well as the degree of multinationality was estimated for each industry, with the group means presented in Table 12.

The results are consistent with the view that R&D and advertising increases the probability that a firm will be an MNE. Holding firm size constant the probability of being an MNE is higher for firms classified to high rather than low R&D or advertising intensive industries. In the case of advertising intensity, for example, the probabilities are 0.3041 and 0.2344, respectively. In general, the degree of multinationality, holding firm size constant, is greater for MNEs classified to high rather than low advertising and R&D intensive industries.[20]

Regression Results.

An alternative approach to examining the pattern of Canadian direct investment abroad is to use regression analysis. (Table 13). In each case a number of industry dummy variables are introduced to take into industry specific effects. Following Grubaugh(1987) the logistic regression is used to estimate the probability of a firm being an MNE. In all instances the equations are estimated for large firms only -- that is those with assets of $25 million or more. Of the more than 3000 firms in this sample 554 were MNEs. They accounted for 99.4 per cent of the foreign assets of Canadian MNEs, and 58.4 per cent of their total assets.

In general perhaps the most noticeable result is the fact that the independent variables do not explain a very large percentage of the variance of the various dependent variables used in Table 13, with the exception of NC where 37 per cent is "explained." This is not, perhaps, surprising given the problems and approximations that are involved in the estimation of a number of the variables as well as the fact the enterprise was used as the unit of analysis rather than the hybrid enterprise which previous studies seem to have selected. Certainly the R^2 are much lower than the comparable results found in U.S. studies.(Grubaugh,1987, for equation 1). This did not change dramatically if the sample matched more closely

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[20]The reverse pattern holds, however, with respect to large firms in high compared to low R&D intensive industries.

those used in previous work, by, for example considering only the leading 100 or 500 firms. Similarly changing the specification of some of the variables did not change the results(e.g., the use of a firm's rank as opposed to its assets as the enterprise size variable).

The major determinants of being a MNE is nationality and the diversification strategy followed by the firm. The probability of being an MNE increases if a firm is Canadian rather than foreign-controlled. The more unrelated are the activities over which a firm diversifies its activities the greater the probability the firm will be an MNE. Both of these results are consistent with the earlier tabular results. Firm size, which other studies have singled out as very important factor, and which comes through as an important factor in much of the tabular material presented above, is not statistically different significant from zero. However, in part, it may be that nationality and diversity are picking up some of the firm size effects.

Turning now to the extent of firm multinationality, firm size does have an impact. It exerts a positive and statistically significant influence on NC and MLTNTL. The country of control also affects NC, in particular, being Canadian-controlled significantly increases NC. Finally, the more unrelated the firm's diversification pattern the smaller is the degree of multinationality. In other words, unrelated diversification leads to an increased probability of being an MNE, but lowers the degree of multinationality. By and large these results are consistent with those presented earlier in tabular form.

FUTURE RESEARCH

This paper is a first step towards providing a more complete picture of Canada's MNEs using the extensive data sets available at Statistics Canada. Much of the picture so far revealed is consistent with the earlier work, especially in the U.S. Nevertheless, further research is warranted in a number of areas. First, better measurement of some of the key variables such as firm size and the extent of firm R&D as well as advertising is required. Second, an important concern over the rise of MNEs is that they shift employment abroad. At the present time employment abroad is not captured by Statistics Canada, a situation that should be rectified, by, for example, through a benchmark survey every few years. Finally, of course, the linking of firms through time would provide a longitudinal picture of the dynamics of Canadian direct investment abroad and a better base to test a number of the hypothesis discussed above.

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Table 1

Selected Definitions of a Multinational Enterprise[1]

Country of control (study)	Ratio of foreign to total operations	Number of foreign countries in which affiliates located	Firm size	Sample size	Sectoral coverage
Canada (Niosi)	..	4	Assets greater than $1 billion or sales greater than $2 billion in 1979	13 corporations	Mining manufacturing and utility
Canada (Rugman & McIlveen)	25 per cent[2]	at least one	Listed on 1982 Fortune international 500 non-U.S. industrial corporations	20 corporations	Manufacturing and mining
U.S. (Vernon)[3]	..	6	Listed on Fortunes's 500 U.S. industrial firms, 1984	187 corporations	Manufacturing and mining
U.S. (Grubaugh)	10 per cent[4]	at least one	File reports with the Security and Exchange Commission in 1982[5]	186 corporations	Utilities excluded

1 Selected from the more important U.S. and Canadian empirical studies of MNEs. In applying these definitions exceptions were made by the authors.
2 Sales. Included in foreign and total sales were exports.
3 Horst (1972) uses a similar definition to Vernon (1971).
4 Assets of foreign affiliates to total assets.
5 Random sample of 300 were originally selected.

Source Grubaugh (1987, p. 150, footnote 2); Horst (1972, p. 258, footnote 1); Niosi (1985, p. 8); Rugman and McIlveen (1985, pp. 20-24); and Vernon (1971, pp. 15-17).

Table 2

The Degree of Enterprise Multinationality, Canadian MNEs,[1]
Classified by Number of Countries in Which Direct Investment, 1986

Number of countries in which direct investment	Enterprises[2]		Distribution of direct investment[3]	Distribution of assets[4]	Mean enterprise ratio of direct investment to assets
	No.	%	%	%	%
1	719	72.8	13.8	15.4	19.1
2	130	13.2	5.7	4.6	18.2
3	48	4.9	4.8	14.4	17.4
4	25	2.5	3.2	1.9	19.7
5	13	1.3	3.5	2.8	20.7
6	11	1.1	1.1	1.9	20.2
7	8	0.8	2.9	4.1	12.2
8	6	0.6	2.2	0.4	32.3
9	4	0.4	5.2	5.9	8.6
10-11	5	0.5	1.4	1.1	16.4
12-13	5	0.5	6.0	8.1	10.3
14-16	4	0.4	21.2	6.4	26.9
17-19	3	0.3	13.3	7.0	23.3
20-23	0	--	--	--	--
24-29	4	0.4	12.0	15.3	35.6
30-42	3	0.3	3.5	10.6	9.4

1 Enterprises located in Canada with direct investment. The nationality of the enterprise could be either Canada or foreign.
2 Enterprises with direct investment.
3 Valued as book value of long term investment plus net short-term inter-company debt.
4 Total assets (Canadian and foreign).

Source Special Tabulations. Business and Labour Markets Analysis, Statistics Canada (PGFDI6A).

Table 3

The Degree of Enterprise Nationality, Canadian MNE's,[1]
Classified by the Ratio of Direct Investment to Assets, 1986

Ratio of direct investment to assets	Enterprises[2]		Distribution of direct investment[3]	Distribution of assets[4]	Mean enterprise number of countries in which direct investment
	No.	%	%	%	No.
0.00-0.049	346	35.0	20.4	73.9	1.9
0.05-0.09	141	14.3	18.7	13.1	2.1
0.10-0.149	102	10.3	12.4	5.7	1.9
0.15-0.19	86	8.7	7.3	2.4	1.8
0.20-0.29	91	9.2	6.2	1.4	2.1
0.30-0.39	55	5.6	1.6	0.2	1.6
0.40-0.49	51	5.2	3.2	0.4	1.6
0.50-0.59	40	4.0	18.1	1.8	2.2
0.60-0.69	27	2.7	7.8	0.7	2.6
0.70-0.79	23	2.3	3.6	0.2	2.5
0.80-0.89	17	1.7	0.7	0.05	1.9
0.90-0.99	9	0.9	0.1	0.004	1.0

1 Enterprises located in Canada with direct investment. The nationality of the enterprise could be either Canada or foreign.
2 Enterprises with direct investment.
3 Valued as book value of long term investment plus net short-term inter-company debt.
4 Total assets (Canadian and foreign).

Source Special Tabulations. Business and Labour Markets Analysis, Statistics Canada (PGFDI6AA).

Table 4

The Degree of Enterprise Nationality, Canadian MNE's,[1] Classified by the MLTNTL Index, 1986

MLTNTL index[2]	Enterprises[3]		Distribution of direct investment[4]	Distribution of assets[5]	Mean enterprise ratio of direct investment to assets	Mean enterprise number of countries in which direct investment
	No.	%	%	%	%	No.
0.90-1.00	366	37.0	20.6	74.1	3.8	1.9
0.80-0.89	164	16.6	26.4	16.8	9.0	2.1
0.70-0.79	130	13.2	9.4	3.5	17.4	1.7
0.60-0.69	110	11.1	7.6	1.7	30.5	1.6
0.50-0.59	175	17.7	7.9	1.1	44.5	1.5
0.40-0.49	22	2.2	13.1	1.4	50.4	3.8
0.30-0.39	16	1.6	8.6	0.8	61.5	6.8
0.00-0.29	5	0.5	6.4	0.6	71.7	9.4

1 Enterprises located in Canada with direct investment. The nationality of the enterprise could be either Canada or foreign.
2 See text for definition of MLTNTL.
3 Enterprises with direct investment.
4 Valued as book value of long term investment plus net short-term inter-company debt.
5 Total assets (Canadian and foreign).

Source Special Tabulations. Business and Labour Markets Analysis, Statistics Canada (PGFDI10A).

Table 5

Enterprise Size, Multinationality, and the Probability of Being a Multinational, Canada, 1986

Rank of enterprise[1]	Proportion that are multinationals	For those enterprises with direct investment[2]		
		Ratio of direct investment to assets	Number of countries in which direct investment	
		%	No.	MLTNTL[3]
		Mean values		
1-25	0.80	5.7	13.3	0.915
26-50	0.72	7.1	5.5	0.886
51-75	0.68	6.3	3.7	0.899
76-100	0.56	7.1	3.8	0.886
101-150	0.54	9.3	4.7	0.853
151-200	0.34	11.0	2.4	0.851
201-300	0.37	11.0	3.0	0.845
301-400	0.35	10.9	2.4	0.849
401-500	0.27	15.1	1.9	0.794
501-750	0.24	11.9	2.0	0.837
751-1,000	0.20	14.2	1.4	0.807
1,001-5,000	0.07	15.9	1.4	0.800
5,001-10,000	0.02	19.5	1.3	0.748
10,001-25,000	0.009	30.9	1.2	0.706
25,001-50,000	0.003	28.5	1.1	0.716
50,001-75,000	0.001	36.0	1.0	0.680
75,001-100,000	0.0008	36.0	1.1	0.697
100,001-579,885	0.00004	38.9	1.0	0.678

1 Rank based on assets. Refer to all enterprises in Canadian economy, irrespective of whether or not they have direct investment.
2 They own at least 10 per cent in an affiliate.
3 See text for definition.

Source Special Tabulations. Business and Labour Market Analysis Group, Statistics Canada, (PGFDI11A).

Table 6

Enterprise Size, Multinationality, and the Probability of Being a Multinational, by Canadian and Foreign Controlled Firms, Canada, 1986

Rank of enterprise[1]	Proportion that are Foreign Controlled	Proportion that are multinationals	For those enterprises with direct investment[2]		
			Ratio of direct investment to assets	Number of countries in which direct investment	
	%		%	No.	MLTNTL[3]
		Ratio of mean values of Canadian to foreign controlled firms			
1-25	12.0	1.23	3.58	7.25	0.94
26-50	32.0	1.22	2.69	1.86	0.92
51-75	40.0	1.22	3.07	1.36	0.92
76-100	40.0	2.44	0.34	1.04	1.16
101-150	30.0	1.89	2.32	1.23	0.92
151-200	54.0	2.15	1.16	2.57	0.95
201-300	47.0	2.39	0.33	0.96	1.16
301-400	45.0	2.05	1.06	1.58	0.97
401-500	52.0	1.58	1.01	0.77	1.07
501-750	49.2	1.67	2.47	1.47	0.90
751-1,000	30.4	1.24	0.40	1.23	1.14
1,001-5,000	20.2	3.09	0.90	0.92	1.02
5,001-10,000	10.7	0.41	0.95	0.90	1.04
10,001-25,000	5.7	0.23	1.25	1.03	0.95
25,001-50,000	2.6	0.12	1.98	0.89	0.92
50,001-75,000	1.4	0.05	1.05	1.05	0.99
75,001-100,000	1.1	0.20	0.34	1.11	0.75
100,001-579,885	0.2	0.01	1.08	1.06	0.69

Rank based on assets. Refer to all enterprises in Canadian economy, irrespective of whether or not they have direct investment.
They own at least 10 per cent in an affiliate.
See text for definition.

ource Special Tabulations. Business and Labour Market Analysis Group, Statistics Canada, (PGFDI13A).

Table 7

Enterprise Diversification Strategy:
A Threefold Classification

Title	Description
1. Single product	Equivalent sales account for 95 per cent or more of the firm's sales. Equivalent sales are activities that perform the similar functions.
2. Related product and vertically integrated	Equivalent sales account for less than 95 per cent of sales, but related or vertically integrated sales account for greater than 70 per cent of sales. Related sales are where industries bear either a technological or marketing relation to one another; vertically integrated, where the industries are in the same production/ marketing chain.
3. Unrelated product (conglomerate)	Equivalent sales are 70 per cent or less; related and vertically integrated sales 70 per cent or less.

Source Niosi *et. al.* (1991).

Table 8

The Diversification Strategy of Canadian Enterprises,[1] 1986

Diversification strategy[2]	Enterprises		Assets	Average size (Single product = 1.00)
	No.	%	%	
Single product	549,093	94.7	32.1	1.00
Related product	2,249	0.4	35.5	269.42
Conglomerate	28,534	4.9	32.4	19.37
Total	579,876	100	100	-

1 Refers to all enterprises in the Canadian economy, irrespective of whether or not they have direct investment.
2 See Table 7 for definition of "Diversification Strategy."

Source Special Tabulations, Business and Labour Market Analysis Group, Statistics Canada (PGFDI16A, 8402, 5/12/91).

Table 9

Diversification Strategy, Enterprise Size, Multinationality, and the Probability of Being a Multinational, Canada, 1986

Diversification strategy[1]	Number of enterprises		Proportion that are multinationals	For those enterprises with direct investment[3]		
	All[2]	MNEs[3]		Ratio of direct investment to assets	Number of countries in which direct investment	MLTNTL[4]
				%	No.	
				Mean values		
Single product						
Small	546,919	339	0.0006	25.3	1.2	0.736
Large	2,147	257	0.1197	16.7	1.8	0.796
Total	549,093	596	0.0011	21.6	1.5	0.762
Related product						
Small	1,518	33	0.0217	14.7	1.2	0.792
Large	731	208	0.2845	9.6	3.0	0.854
Total	2,249	241	0.1072	10.3	2.7	0.846
Conglomerate						
Small	28,262	66	0.0023	38.8	1.1	0.647
Large	272	84	0.3088	9.7	3.8	0.859
Total	28,534	150	0.0053	22.5	2.6	0.766

1 See Table 7 for definition of "Diversification Strategy."
2 Refers to all enterprises in the Canadian economy, irrespective of whether or not they have direct investment.
3 They own at least 10 per cent in an affiliate.
4 See text for definition.
5 "Small" is defined as assets of less than $25 million; "large," assets of $25 million or greater.

Source Special Tabulations. Business and Labour Market Analysis Group, Statistics Canada, (PGFDI16A, 8402, 5/12/91).

Table 10

Concentration and the Probability of Being a Multinational,[1] All, Small and Large Firms,[2] 2-digit Industry Level,[3] Canada, 1986

Four firm concentration category[4]	Industries Number	All Firms		Small Firms		Large Firms	
		Number	Probability of being an MNE	Number	Probability of being an MNE	Number	Probability of being an MNE
Per cent				Mean[5]			
0-25	17	32,005	0.010	31,832	0.007	184[6]	0.301
25-50	8	4,672	0.033	4,607	0.015	65	0.425
50-75	7	646	0.066	611	0.022	35	0.477
75-100	2	327	0.134	320	0.007	7	0.636
All industries	34	17,254	0.034	17,145	0.012	113	0.389

1 Enterprises located in Canada with direct investment. The nationality of the enterprise could be either Canadian or foreign.

2 Small firms are those with assets of less than $25 million; large firms are those with assets of $25 million or more. In this context a firm is defined as all corporations under common control classified to a 2 digit industry.

3 This classification follows that used in CALURA publications: agriculture, forestry and fishing; metal mining; mineral fuels; other mining; food; beverages; tobacco products; rubber products; leather products; textile mills; knitting mills; clothing industries; wood industries; furniture industries; paper and allied industries; printing, publishing and allied industries; primary metals; metal fabricating; machinery; transport equipment; electrical products; non-metallic mineral products; petroleum and coal products; chemicals and chemical products; miscellaneous manufacturing; construction; transportation; storage; communications; public utilities; wholesale trade; retail trade; finance; and services.

4 All corporations under common control classified to a given 2-digit industry are grouped together. Their total sales is the denominator of the concentration ratio; the sales of the leading four the numerator.

5 Mean ratio across all industries in a given concentration class.

6 For one industry in this category there were no large firms with the result that the mean industry number of large firms and the mean probability of being an MNE is estimated across 16 not 17 industries.

Source Special Tabulations, Business and Labour Markets Analysis Group, Statistics Canada (PGFD117C: 4283, 13/12/91; 7198, 13/12/91; 7711, 20/12/91).

Table 11

Concentration, and the probability of being a multinational[1], leading four and eight firms, 2-digit industry level[2], Canada, 1986

Four firm Concentration category[3]	Number of Industries	Probability of being a multinational among[3]	
		Leading four firms	Leading ten firms
		Mean[4]	
0-25	17	0.46	0.44
25-50	8	0.78	0.69
50-75	7	0.75	0.66
75-100	2	0.38	0.20
All industries	34	0.59	0.53

1 Enterprises located in Canada with direct investment. The nationality of the enterprise could be either Canadian or foreign.

2 This classification follows that used in CALURA publications: agriculture, forestry and fishing; metal mining; mineral fuels; other mining; food; beverages; tobacco products; rubber products; leather products; textile mills; knitting mills; clothing industries; wood industries; furniture industries; paper and allied industries; printing, publishing and allied industries; primary metals; metal fabricating; machinery; transport equipment; electrical products; non-metallic mineral products; petroleum and coal products; chemicals and chemical products; miscellaneous manufacturing; construction; transportation; storage; communications; public utilities; wholesale trade; retail trade; finance; and services.

3 All corporations under common control classified to a given 2-digit industry are grouped together. Their total sales is the denominator of the concentration ratio; the sales of the leading four the numerator.

4 Mean ratio across all industries in a given concentration class.

Source Special tabulations, Business and Labour Markets Analysis Group, Statistics Canada. (PGFD118A)

Table 12

Advertising,[1] R & D,[2] Enterprise Size,[3] Multinationality and the Probability of Being a Multinational, 2-Digit Industry, Manufacturing Sector,[4] Canada, 1986

		For those industries with firms that had direct investment		
	Proportion that are MNEs	Ratio of direct investment to assets %	Number of countries in which direct investment No	MLTNTL
Advertising intensity		(Mean values)[7]		
High[5]				
Small	0.0043	16.4	1.2	0.801
Large	0.3041	14.3	2.4	0.801
All firms	0.0143	16.5	2.0	0.795
Low[5]				
Small	0.0035	15.9	1.1	0.802
Large	0.2344	12.2	2.5	0.820
All firms	0.0122	12.7	2.1	0.823
R&D intensity				
High[6]				
Small	0.0056	17.6	1.2	0.751
Large	0.3397	12.8	2.3	0.817
All firms	0.2068	13.6	2.0	0.805
Low[6]				
Small	0.0022	14.6	1.0	0.859
Large	0.1989	13.9	2.6	0.802
All firms	0.0058	15.9	2.1	0.812

1 Advertising intensity is defined as the advertising sales ratio. The year selected was 1977. For details see Baldwin and Gorecki (1986 pp. 173-4).

2 R&D intensity is defined as the ratio of R&D personnel to wage and salary persons for 1979. For details see Baldwin and Gorecki (1986, p. 183).

3 Enterprises are defined as large or small depending upon whether or not their assets were above or below $25 million.

4 The manufacturing sector was divided into twenty 2-digit industries: food and beverages; tobacco products; rubber products; leather products; textile mills; knitting mills; clothing industries; wood industries; furniture industries; paper and allied industries; printing, publishing and allied industries; primary metals; metal fabricating; machinery; transportation equipment; electrical products; non-metallic mineral products; petroleum and coal products; chemicals and chemical products; miscellaneous manufacturing. This is the 1970 2-digit SIC classification. The use of this classification reflects the fact that the advertising and R&D intensities were available using the 1970 SIC. The 1960 SIC was changed to the 1970 SIC so MNE and CALURA data could be used. While the concordance is not exact at the 2-digit level it is reasonably close. For details, see Dominion Bureau of Statistics (1970).

Table 13

The Determinants of Being an MNE and the Degree of Multinationality: Regression[1] Analysis for Large Canadian Enterprises,[2] All Sectors, 1986

Dependent Variable	Constant	Independent Variables[3] Enterprise Size[4]	Enterprise Nationality[5]	Enterprise Diversification[6]	Industry Concentration[7]	R^2
		(Regression coefficients and t-values)				
1 Probability of being an MNE	-3.069 (2.92)*	0.045×10^{-4} (0.42)	0.357 (3.21)*	0.204 (2.94)*	0.137 (1.22)	0.0237
2 RATSET	0.122 (1.38)	-0.013×10^{-4} (-1.41)	-0.023 (-1.35)	-0.038 (-3.59)*	0.003 (0.19)	0.0333*
3 NC	0.254 (0.15)	0.00029 (17.12)*	0.574 (1.76)***	0.287 (1.40)	0.399 (1.41)	0.3739*
4 MLTNTL	0.827 (9.38)*	0.016×10^{-4} (1.79)***	0.009 (0.56)	0.031 (2.98)*	-0.010 (-0.70)	0.0219**

1 For equation 1 the logistic regression procedure was employed; for the remaining regressions ordinary least squares.
2 All enterprises with assets of $25 million or greater.
3 Eight industry dummy variables were also included. They were: mining; manufacturing; construction; utilities; wholesale trade; retail trade; finance; and services. The omitted category was agriculture, forestry and fishery and trapping.
4 Measured in $millions, assets.
5 1 = Canadian, 0 = otherwise.
6 0 = single product; 1 = related product, 2 = conglomerate.
7 Concentation = 0, when 0<CR4<25; 1, 25<50; 2, 50<CR4<75: and 3, 75<CR4<100. CR4 = percentage of industry shipments accounted by the leading four firms. CR4 is estimated for 34 industries. See Table 10, note 3 for details.

* significant at the 1% level two tailed test
** " " " 5% " " " "
*** " " " 10% " " " "

Source Special Tabulations, Business and Labour Markets Analysis Group, Statistics Canada. (PGFD11SK, 7004, 20/12/91; PGFD11SJ, 18/12/91).

5 All 2-digit industries were ranked from high to low in terms of their advertising intensity. The highest 10 was deemed to have high advertising intensity; the remaining 10 were deemed to be low advertising intensity. Advertising intensity at the 2-digit level was measured as the weighted mean of the ratio for the 4-digit industries into which the 2-digit industry was divided, where the weight was industry value added in 1979.

6 The same procedure as in the case of advertising was used. See note 5 for details.

7 Mean ratio across all 2-digit industries in a given class.

Source Special Tabulations, Business and Labour Market Analysis Group, Statistics Canada. (PGFD116T, 7134, 14/1/92)

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